

ORNITHOLOGY

Project title: **Movements and Survival of Bald Eagles produced in Yellowstone**

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Objective: Determine movements, survival, and turnover of bald eagles produced and nesting in Yellowstone National Park.

Findings: Movements and survival of immature bald eagles (*Haliaeetus leucocephalus*) beyond their first winter remain largely unknown and lack of information may impede strategies for effective conservation. We analyzed encounters, sightings, and radio detections of bald eagles auxiliary marked as nestlings in the Greater Yellowstone Ecosystem between June 1979 and July 1997 to determine movements, survival, and the role of Yellowstone National Park in the ecology of GYE bald eagles. Of 344 bald eagles banded, 17% were encountered to June 1998. Most (84%) were encounters of bald eagles greater than one year old. Half of encounters were external to the GYE and occurred in seven western states and one Canadian province. All sightings of color-banded bald eagles (n=76) were of bald eagles greater than one year old, and 76% occurred in the GYE. Location and timing of encounters and detections of radiotagged bald eagles indicated most (more than 90%) juveniles left the GYE in autumn, traveled as far west as coastal states to winter, and returned to natal areas the following spring. Natal dispersal appeared female-biased, and bald eagles produced in the GYE recruited into breeding populations both in and out of the ecosystem. Mortality of 49 bald eagles recovered was from unknown causes (31%), electrocution or collision with power lines (20%), known or suspected poisoning (16%), and gunshot wounds (14%). Eighteen percent was distributed among three other causes. Recovery rates indicated bald eagles 3-5 years old experienced the highest mortality. Kaplan-Meier analysis of detections of radiotagged bald eagles indicated first-year survival of 87%, followed by a constant decrease in survival rate over seven years. Survival estimates determined by radiotracking were consistent with band recovery results in illustrating low survival in 3-5 year old age classes. Radiotracking of immature bald eagles suggested habitat in Yellowstone National Park was important in promoting survival of eventual recruits to the GYE population.